

**Notice of Allowability**

Application No.

10/522,026

Examiner

Zia R. Hashmi

Applicant(s)

JOHANSSON ET AL.

Art Unit

2881

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 11/1/2006.
2. ☒ The allowed claim(s) is/are 1-12 and 19-29.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All b) ☐ Some\* c) ☐ None of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |  |   |
|--|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)   | 5. <input type="checkbox"/> Notice of Informal Patent Application                     |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br>Paper No./Mail Date _____    | 7. <input type="checkbox"/> Examiner's Amendment/Comment                              |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance  |
|  | 9. <input type="checkbox"/> Other _____   |

  
**JACK BERMAN**  
PRIMARY EXAMINER

## DETAILED ACTION

### *Allowable Subject Matter*

1. An "Amendment" was received on November 1, 2006, in response to Office Action of May 5, 2006. Independent claims 1 and 6 have been amended, as indicated.
2. Claims 1-12 and 19-29 are allowed.
3. The following is an examiner's statement of reasons for allowance:
4. With respect to amended independent claim 1, prior art fails to disclose a method of generating x-ray or EUV radiation, comprising the steps of:
  - (i) urging a target material through a flexible capillary tubing from an input end to an output end, the target material exiting the capillary tubing in liquid state into an interaction chamber, such that a target jet is formed in the interaction chamber; and,
  - (ii) directing at least one energy beam onto said target jet, the energy beam interacting with the target jet in the interaction chamber to generate the x-ray or EUV radiation; wherein the target material exits the capillary tubing through an orifice at the output end, said orifice being an integral part of the capillary tubing, and wherein the target material is cooled during its propagation from the input end to the output end of the capillary tubing. And,
5. With respect to amended independent claim 6, prior art further fails to disclose an arrangement for generating x-ray or EUV radiation, comprising:
  - a source of target material;

Art Unit: 2881

- an interaction chamber;
- an energy source for generating an energy beam;  
an orifice having an opening into the interaction chamber;
- a flexible capillary tubing connecting the source of target material to the orifice;
- means for urging target material from the source of target material, via the capillary tubing, out through said orifice in a liquid state to form a target jet in the interaction chamber; and,
- means for directing the energy beam from the energy source onto the target jet to interact with the same, thus producing said x-ray or EUV radiation; and,
- means for cooling the target material during its propagation from the input end to the output end of the capillary tubing,  
wherein the orifice is an integral part of the capillary tubing, wherein the orifice is an integral part of the capillary tubing.

### ***Conclusion***


6. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments of Statement of Reasons for Allowance".
7. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published

Art Unit: 2881

applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact Electronic Business Center (EBC) at 866-217-9197 (toll-free).

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zia Hashmi whose telephone number is (571) 272-2473. The examiner can normally be reached between 8.30 AM- 5 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Lee can be reached on (571) 272-2477.

Zia Hashmi  
January 16, 2006.

  
JACK BERMAN  
PRIMARY EXAMINER